PROJECT DESCRIPTION

I. GENERAL

THIS PROJECT INVOLVES THE MODIFICATION OF AN EXISTING TRAFFIC CONTROL SIGNAL AT MD 235 AND OLD ROLLING ROAD/SHADY MILE DRIVE. MD 235 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

II. INTERSECTION OPERATION

THIS INTERSECTION WILL OPERATE IN A NEMA SIX (6) PHASE FULL-TRAFFIC-ACTUATED MODE. EXCLUSIVE LEFT TURN PHASES WILL BE PROVIDED FOR NORTHBOUND AND SOUTHBOUND MD 235. THE MD 235 THROUGH MOVEMENTS WILL OPERATE CONCURRENTLY. THE OLD ROLLING ROAD/SHADY MILE DRIVE APPROACHES WILL OPERATE SEPARATELY.

A PEDESTRIAN PHASE WILL OPERATE ON THE EAST AND WEST LEGS CONCURRENTLY WITH THE MD 235 THROUGH MOVEMENTS. AN ALTERNATE PEDESTRIAN PHASE IS PROVIDED ON THE NORTH LEG OF MD 235.

PRE-EMPTION ON NORTHBOUND MD 235 WILL CALL PRE-EMPT 1.

III. CONTROLLER REQUIREMENTS

A FULL-ACTUATED EIGHT-PHASE CONTROLLER WITH SIX (6) FOUR-CHANNEL, TIME-DELAY OUTPUT LOOP DETECTOR AMPLIFIERS, PRE-EMPTION, AUTOSCOPE MONITOR, TELEMETRY UNIT AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE 6 BASED MOUNTED CABINET. A TRAFFIC RESPONSIVE MASTER CONTROLLER WILL BE HOUSED IN A NEMA SIZE '5' BASE MOUNTED CABINET.

IV. INTERCONNECT

EXISTING 12 PAIR VOICE GRADE COMMUNICATION CABLE SHALL BE REROUTED BETWEEN MD 4 AND OLD ROLLING ROAD/SHADY MILE DRIVE AS SHOWN ON INTERCONNECT PLANS AND WIRING DIAGRAM.

V. PROJECT CONTACTS

THE PROJECT CONTACTS FOR DISTRICT #5 ARE AS FOLLOWS:

MR. PAUL ARMSTRONG
DISTRICT ENGINEER
PHONE: 410-841-5450

MR. LAWRENCE E. ELLIOT
ASSISTANT DISTRICT ENGINEER-TRAFFIC
PHONE: 410-841-5450

MR. RAYMOND HUTZLER
ASSISTANT DISTRICT ENGINEER-MAINTENANCE
PHONE: 410-841-5461

MR. JOHN MAYS
DISTRICT UTILITY ENGINEER
PHONE: 410-841-5450

MR. RICHARD L. DAFF, SR.
CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: 410-787-7630

THE PROJECT CONTACT FOR THE SOUTHERN MARYLAND ELECTRIC COOPERATIVE, INC. (SMECO) IS AS FOLLOWS:

DISTRICT MANAGER
SMECO
P.O. BOX 12B
LEONARDTOWN, MARYLAND 20650
PHONE: 301-475-5631

EQUIPMENT LIST 'A'

EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION.

SPECIFICATION QUANTITY	UNIT	SECTION	DESCRIPTION	CATEGORY CODE NO.
1	EA	816	EIGHT-PHASE, FULL-TRAFFIC-ACTUATED, SOLID STATE DIGITAL CONTROLLER HOUSED IN A NEMA 'SIZE '6' BASE MOUNTED CABINET	971017
1	EA	816	TRAFFIC RESPONSIVE SOLID STATE DIGITAL MASTER CONTROLLER HOUSED IN A NEMA 'SIZE '5' BASE MOUNTED CABINET	971017
6	EA	SP	FOUR-CHANNEL, TIME DELAY OUTPUT, LOOP DETECTOR AMPLIFIER	963007
6	EA	814	12 INCH 1 WAY 3 SECTION (R, Y, G) SIGNAL HEAD - MAST ARM MOUNT	960022
4	EA	814	12 INCH 1 WAY 4 SECTION (R, Y, G, GA) SIGNAL HEAD - MAST ARM MOUNT	960027
5	EA	814	12 INCH 1 WAY 3 SECTION (RA, YA, GA) SIGNAL HEAD - MAST ARM MOUNT	960023
2	EA	814	12 INCH 1 WAY 2 SECTION PEDESTRIAN SIGNAL HEAD-SIDE POLE MOUNT	960068
2	EA	814	12 INCH 2 WAY 2 SECTION PEDESTRIAN SIGNAL HEAD-SIDE POLE MOUNT	960069
2	EA	817	PEDESTRIAN PUSHBUTTON AND SIGN	965001
150	SF	813	FLAT SHEET ALUMINUM SIGNS CONSISTING OF: - 5 EACH R3-5L (30" X 36")-MAST ARM MOUNT - 1 EACH R3-6 (30" X 36")-MAST ARM MOUNT - 2 EACH SHIELD ASSEMBLY (48" X 79") SIDE POLE MOUNT - 2 EACH SHIELD ASSEMBLY (30" X 51") SIDE POLE MOUNT - 4 EACH D3-2 (OLD ROLLING ROAD ROAD/ SHADY MILE DRIVE) (VAR." X 32")-MAST ARM MOUNT	973023

EQUIPMENT LIST 'B'

EQUIPMENT FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

SPECIFICATION QUANTITY	UNIT	SECTION	DESCRIPTION	CATEGORY CODE NO.
3	CY	205	TEST PIT EXCAVATION	203030
900	LF	SP	12 INCH WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING TAPE	505443
250	LF	SP	24 INCH WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING TAPE	505445
2	EA	816	INSTALL CONTROLLER AND CABINET-BASE MOUNT	871202
150	SF	813	INSTALL OVERHEAD SIGN	813015
20	EA	814	INSTALL SIGNAL HEAD (ANY TYPE)	820000
2	EA	817	INSTALL PUSHBUTTON AND SIGN	865201
2	EA	SP	FURNISH AND INSTALL 20' LIGHTING ARM	866104
13	EA	811	FURNISH AND INSTALL ELECTRICAL HANDHOLE	811001
19	CY	801	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION	801004
329	LF	805	FURNISH AND INSTALL 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE	805160
1000	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	800000
175	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	805145
350	LF	805	FURNISH AND INSTALL 3" SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	805150
25	LF	805	FURNISH AND INSTALL 4" SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	800000
2	EA	807	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT	807205
4	EA	SP	CUT, CLEAN AND CAP TRAFFIC SIGNAL STRUCTURE	800000
1	EA	SP	FURNISH AND INSTALL OPTICOM DETECTOR EYE MODEL 721	800000
2	EA	806	FURNISH AND INSTALL 250 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE WITH PHOTOCELL	800000
5	EA	804	FURNISH AND INSTALL GROUND ROD-3/4 INCH DIAMETER X 10-FOOT LENGTH	837001
550	LF	810	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	802501
150	LF	810	FURNISH AND INSTALL OPTICOM CABLE-4 CONDUCTOR (NO. 20 AWG)	800000
10175	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-2 CONDUCTOR (ALUMINUM SHIELDED)	861104
1500	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-2 CONDUCTOR (NO 14 AWG)	861105
1475	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-3 CONDUCTOR (NO 14 AWG)	861106
2600	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-5 CONDUCTOR (NO 14 AWG)	861107
1525	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-7 CONDUCTOR (NO 14 AWG)	861108
9660	LF	810	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO 14 AWG)	862101
2950	LF	815	FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)	862102
550	LF	810	FURNISH AND INSTALL 2-CONDUCTOR TRAY CABLE (NO 12 AWG)	861116
950	LF	810	FURNISH AND INSTALL COAXIAL CABLE	800000
70	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE 1 CONDUCTOR (NO. 4 AWG)	810010
2	EA	SP	FURNISH AND INSTALL 21-FOOT STEEL POLE WITH SINGLE 70-FOOT MAST ARM	800000
2	EA	SP	FURNISH AND INSTALL 27-FOOT STEEL POLE WITH SINGLE 60-FOOT MAST ARM	800000
	LS	SP	DELIVERY OF SALVAGED EQUIPMENT	873001
	LS	SP	REMOVE AND DISPOSE OF EXISTING EQUIPMENT	800000
	LS	SP	REMOVAL OF EXISTING SIGNAL EQUIPMENT TO BE SALVAGED	800000
10	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 PVC RISER	805023
2	EA	SP	RELOCATE AUTOSCOPE AND SPLICE BOX	800000

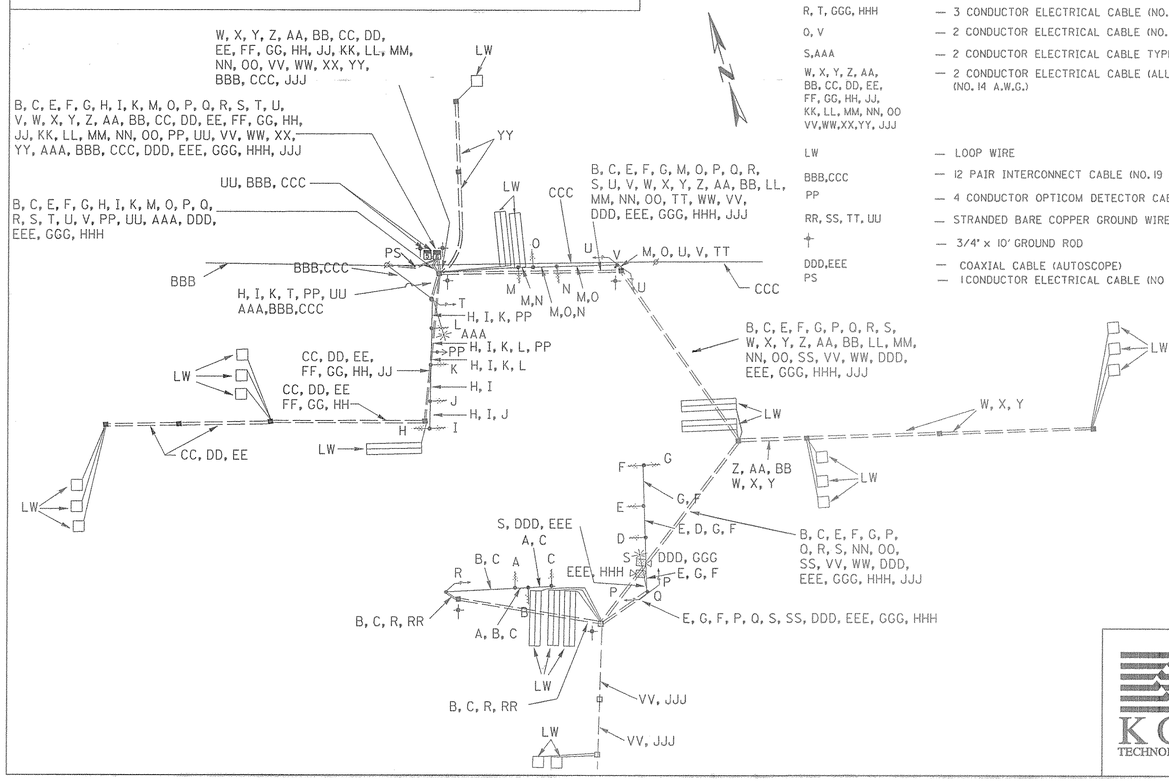
NOT LISTED BELOW, SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

NOTE: ALL EQUIPMENT AND/OR MATERIALS TO BE REMOVED BY THE CONTRACTOR, BUT

QUANTITY	UNIT	DESCRIPTION
4	EA	MAST ARM POLE
4	EA	MAST ARM
2	EA	CONTROLLER AND CABINET

WIRING LEGEND:

B, C, M, O	— 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
A, D, E, F, G, H, I, J, K, L, N, P, U	— 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
R, T, GGG, HHH	— 3 CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
O, V	— 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
S, AAA	— 2 CONDUCTOR ELECTRICAL CABLE TYPE T/C (NO. 12 A.W.G.)
W, X, Y, Z, AA, BB, CC, DD, EE, FF, GG, HH, JJ, KK, LL, MM, NN, OO VV, WW, XX, YY, JJJ	— 2 CONDUCTOR ELECTRICAL CABLE (ALUMINUM SHIELDED) (NO. 14 A.W.G.)
LW	— LOOP WIRE
BBB, CCC	— 12 PAIR INTERCONNECT CABLE (NO. 19 A.W.G.)
PP	— 4 CONDUCTOR OPTICOM DETECTOR CABLE (NO. 20 A.W.G.)
RR, SS, TT, UU	— STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
⏚	— 3/4" x 10' GROUND ROD
DDD, EEE	— COAXIAL CABLE (AUTOSCOPE)
PS	— 1 CONDUCTOR ELECTRICAL CABLE (NO 4 A.W.G.)



PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
PHASE 1 & 5	G	G	R	R	G	G	G	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 & 5 CHANGE	TO PHASE 1-6 OR 2-5 OR 2-6																				
PHASE 1 & 6	R	R	R	R	G	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
1 CHANGE	R	R	R	R	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 & 5	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
5 CHANGE	Y	Y	Y	Y	R	R	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 2 & 6	R	R	G	G	R	R	R	G	G	R	R	R	R	R	R	W	W	W	W	DW	DW
PED CLEAR	R	R	G	G	R	R	R	G	G	R	R	R	R	R	R	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW
2 & 6 CHANGE	R	R	Y	Y	R	R	R	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 3	R	R	R	R	R	R	R	R	R	G/G	G/G	G	R	R	R	DW	DW	DW	DW	DW	DW
3 CHANGE	R	R	R	R	R	R	R	R	R	Y	Y	Y	R	R	R	DW	DW	DW	DW	DW	DW
PHASE 4	R	R	R	R	R	R	R	R	R	R	R	R	G/G	G/G	G	DW	DW	DW	DW	DW	DW
4 CHANGE	R	R	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	DW	DW	DW	DW	DW	DW
ALT 4	R	R	R	R	R	R	R	R	R	R	R	R	G/G	G/G	G	DW	DW	DW	DW	W	W
PED CLEAR	R	R	R	R	R	R	R	R	R	R	R	R	G/G	G/G	G	DW	DW	DW	DW	FL/DW	FL/DW
ALT 4 CHANGE	R	R	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	DW	DW	DW	DW	DW	DW
PRE EMPT 1	R	R	R	R	G	G	G	G	G	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
PRE EMPT 1 CHANGE	R	R	R	R	Y	Y	Y	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK

SD-4 OF SD-8

REVISION 'E'
KCI TECHNOLOGIES INC.
ENGINEERS AND PLANNERS
10 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
21030-1888
(410) 316-7800

REVISIONS
- (C) 8-98 NEW MD 235 GEOMETRICS SHA NO.: P.S.
- (B) 10-97 INSTALL CAMERAS SHA NO.: AW8256/B56 R.R.Z.
- (C) 5-20-97 ASBUILT SHA NO.: BW96M82 R.R.Z.
- (B) 4-15-97 ADJUST CONDUIT AND HANDHOLE ON S/E QUADRANT SHA NO.: BW96M82 R.R.Z.

APPROVALS
ORIGINAL ON FILE
CHIEF, SIGNAL DESIGN SECTION
ASST. DISTRICT ENGINEER-TRAFFIC
CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
DIRECTOR, OFFICE OF TRAFFIC & SAFETY

MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

DRAWN BY: WK TAYLOR (G&D)
DES. BY: EJ WOLANIN (G&D)
CHK. BY:
DATE: SEPTEMBER 1990
SCALE: NONE

MD 235 FROM NORTH OF MD 4 TO MD 237
GENERAL INFORMATION SHEET
MD 235 AND OLD ROLLING ROAD/SHADY MILE DRIVE
COUNTY: ST. MARY'S

F.A.P. NO.
S.H.A. NO.
TS/STD. NO. 3065E-GI
SHEET NO. 146 OF 213